

L Number	Hits	Search Text	DB	Time stamp
1	32	murphy-michael.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:26
7	1495	fibroblast.clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 12:54
13	542	fibroblast.clm. and (transplant or graft)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 12:55
19	378	(fibroblast.clm. and (transplant or graft)) and (collagen or decorin or glycosaminoglycan)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:01
25	48900	(424/\$3).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:01
31	132	((424/\$3).CCLS.) and ((fibroblast.clm. and (transplant or graft)) and (collagen or decorin or glycosaminoglycan))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:02
37	3232	artificial WITH skin	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:18
43	1324	artificial ADJ skin	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:49
49	30	(artificial ADJ skin) and ((fibroblast.clm. and (transplant or graft)) and (collagen or decorin or glycosaminoglycan))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:19
55	41	(US-4304866-\$ or US-4485096-\$ or US-4485097-\$ or US-4837024-\$ or US-4902295-\$ or US-4937323-\$ or US-4963489-\$ or US-5182111-\$ or US-5282859-\$ or US-5443950-\$ or US-5460939-\$ or US-5512475-\$ or US-5516680-\$ or US-5516681-\$ or US-5518915-\$ or US-5541107-\$ or US-5580781-\$ or US-RE35399-\$ or US-5591444-\$ or US-5613982-\$ or US-5624840-\$ or US-5639654-\$ or US-5660850-\$ or US-5665372-\$ or US-5665391-\$ or US-5800811-\$).did. or (US-5830507-\$ or US-5885829-\$ or US-5902741-\$ or US-5945101-\$ or US-5968546-\$ or US-6039760-\$ or US-6110208-\$ or US-6140039-\$ or US-6333029-\$ or US-6365149-\$ or US-4604346-\$ or US-4745098-\$ or US-5888248-\$ or US-6383220-\$).did. or (US-20010048917-\$).did.	USPAT; US-PGPUB	2002/06/12 13:49
58	21	murphy-michael-P\$10.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:26

70	1	((US-4304866-\$ or US-4485096-\$ or US-4485097-\$ or US-4837024-\$ or US-4902295-\$ or US-4937323-\$ or US-4963489-\$ or US-5182111-\$ or US-5282859-\$ or US-5443950-\$ or US-5460939-\$ or US-5512475-\$ or US-5516680-\$ or US-5516681-\$ or US-5518915-\$ or US-5541107-\$ or US-5580781-\$ or US-RE35399-\$ or US-5591444-\$ or US-5613982-\$ or US-5624840-\$ or US-5639654-\$ or US-5660850-\$ or US-5665372-\$ or US-5665391-\$ or US-5800811-\$).did. or (US-5830507-\$ or US-5885829-\$ or US-5902741-\$ or US-5945101-\$ or US-5968546-\$ or US-6039760-\$ or US-6110208-\$ or US-6140039-\$ or US-6333029-\$ or US-6365149-\$ or US-4604346-\$ or US-4745098-\$ or US-5888248-\$ or US-6383220-\$).did. or (US-20010048917-\$).did.) and decorin	USPAT; US-PGPUB	2002/06/12 13:36
73	3	((US-4304866-\$ or US-4485096-\$ or US-4485097-\$ or US-4837024-\$ or US-4902295-\$ or US-4937323-\$ or US-4963489-\$ or US-5182111-\$ or US-5282859-\$ or US-5443950-\$ or US-5460939-\$ or US-5512475-\$ or US-5516680-\$ or US-5516681-\$ or US-5518915-\$ or US-5541107-\$ or US-5580781-\$ or US-RE35399-\$ or US-5591444-\$ or US-5613982-\$ or US-5624840-\$ or US-5639654-\$ or US-5660850-\$ or US-5665372-\$ or US-5665391-\$ or US-5800811-\$).did. or (US-5830507-\$ or US-5885829-\$ or US-5902741-\$ or US-5945101-\$ or US-5968546-\$ or US-6039760-\$ or US-6110208-\$ or US-6140039-\$ or US-6333029-\$ or US-6365149-\$ or US-4604346-\$ or US-4745098-\$ or US-5888248-\$ or US-6383220-\$).did. or (US-20010048917-\$).did.) and (tissue ADJ construct)	USPAT; US-PGPUB	2002/06/12 13:36
76	1324	artificial ADJ skin	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:50
130	1	bioengineered ADJ tissue ADJ construct	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:56
136	6	bioengineered ADJ tissue	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 13:57
142	1	wo adj "200029553"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 14:00
148	0	EP ADJ "0282746"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 14:01
160	7	EP ADJ "282746"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/12 14:02



US005460939A

United States Patent [19][11] **Patent Number:** **5,460,939****Hansbrough et al.**[45] **Date of Patent:** **Oct. 24, 1995**[54] **TEMPORARY LIVING SKIN REPLACEMENT**[75] **Inventors:** John F. Hansbrough, Rancho Santa Fe; Gail K. Naughton, El Cajon, both of Calif.[73] **Assignee:** Advanced Tissue Sciences, Inc., La Jolla, Calif.[21] **Appl. No.:** 200,140[22] **Filed:** Feb. 18, 1994**Related U.S. Application Data**

[60] Continuation-in-part of Ser. No. 131,361, Oct. 4, 1993, which is a division of Ser. No. 575,518, Aug. 30, 1990, Pat. No. 5,266,480, which is a division of Ser. No. 402,104, Sep. 1, 1989, Pat. No. 5,032,508, which is a continuation-in-part of Ser. No. 242,096, Sep. 8, 1988, Pat. No. 4,963,489, which is a continuation-in-part of Ser. No. 38,110, Apr. 14, 1987, abandoned, which is a continuation-in-part of Ser. No. 36,154, Apr. 3, 1987, Pat. No. 4,721,096, which is a continuation of Ser. No. 853,569, Apr. 18, 1986, abandoned.

[51] **Int. Cl.⁶** C12N 11/00; A61F 2/10; C12M 3/00[52] **U.S. Cl.** 435/1.1; 435/240.1; 435/240.23; 424/572; 424/574; 424/93.1; 424/93.21; 424/93.7[58] **Field of Search** 435/1, 2, 240.1, 435/240.2, 240.23, 240.21; 424/93 R, 95, 529, 530, 534, 572, 574, 93 B, 93 U**OTHER PUBLICATIONS**

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Primary Examiner—Michael G. Wityshyn**Assistant Examiner**—Jane Williams**Attorney, Agent, or Firm**—Pennie & Edmonds[57] **ABSTRACT**

The present invention relates to a living skin replacement. In particular, it relates to a biosynthetic dressing material composed of a living stromal tissue prepared from stromal cells such as fibroblasts cultured upon a three-dimensional framework and a transitional covering which acts as an epidermal replacement. Such a living skin replacement provides long-term biologic coverage of full-thickness wound defects. Since human fibroblasts are known to be relatively non-antigenic when transferred to allogeneic hosts, a temporary living skin replacement made up of such cells attached to a transitional covering may replace the use of cadaveric skin allografts for achieving temporary wound closure in cases where the patients lack enough healthy skin for autografts.

12 Claims, 11 Drawing Sheets